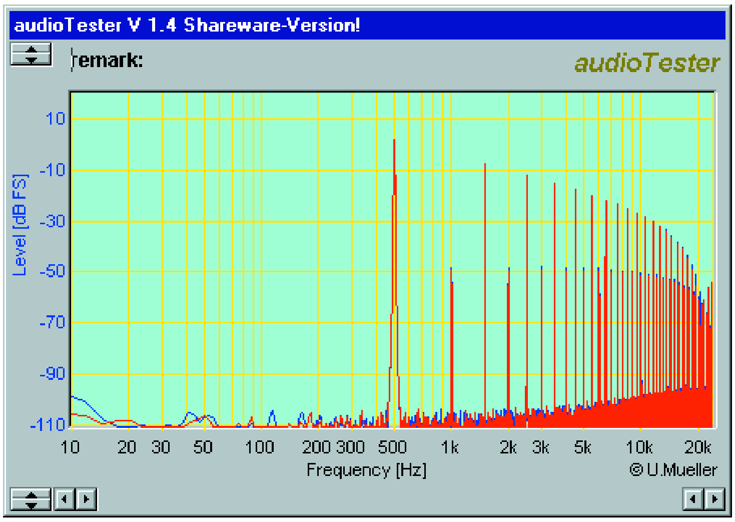
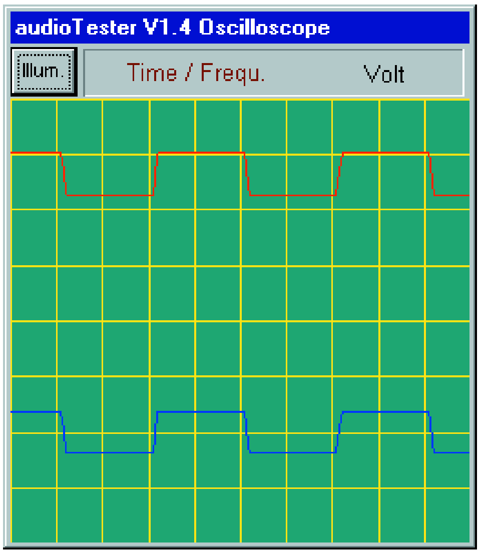
# Audio Tester

001



P. Goossens



Wouldn't it be nice to have an oscilloscope, spectrum analyser and function generator in one instrument without doing enormous damage to your wallet? And in addition, this instrument will not take up space on your crowded desk or workbench and does not require a separate power supply? This sounds too good to be true! But it is possible, provided you already own a Windows-PC with a sound card. Granted, the frequency range is limited to the audio range and the accuracy depends on your sound card, but for 18 pounds or so this is certainly a very handy and desirable measuring instrument.

You have probably realised by now that this is not a build-it-yourself circuit, but a program that is available as shareware on the Internet. You can register the program for 25 euros (approx. £18) and use it is much as you desire.

The (2-channel!) oscilloscope is rather Spartan by design, but that is logical, since the input of a sound card does not possess as many bells and whistles as a normal oscilloscope. It is possible however, to adjust the time base and change the sensitivity of the input channels. This oscilloscope is also fitted with a trigger function, which allows a nice 'stationary' picture to be displayed on the screen. The oscilloscope is quite usable in practice, provided the limited bandwidth and maximum input voltage don't become a problem.

The function generator has the option of generating various waveforms such as sine, rectangle and triangle. White noise and pink noise can also be produced with this generator. A final option permits a wave-file to be played, so that, in principle, any arbitrary waveform is possible (provided it can be generated by the sound card).

The generator also has a second function, namely as a sweep generator. In this case the generator produces different sine waves of increasing frequency. At each frequency, the level at the input is measured. These values are then displayed in a nice Bode-plot. This is very useful when measuring filters, amplifiers, etc.

The final instrument is a spectrum analyser. This makes use of FFT-analysis, which gives the analyser a fast update rate. The adjustments provide, among other things, different windowing options that can be applied to the input signal. The number of samples that are used for analysis is also adjustable.

Being able to carry out a good measurement with this program is entirely dependent on the quality of the sound card. Currently, the average sound card is good enough to make reasonable measurements possible, but they are not really ideal, of course. It should be clear, that the inside of a PC enclosure is hardly a desirable environment for analogue signals. There are manufacturers who, for these reasons, make sound cards available where the A/D and D/A converters are fitted in a separate enclosure from the PC. To reiterate, a standard soundcard is good enough to perform measurements, but you should not expect miracles from it!

The program can be downloaded from the designer's website: http://www.sumuller.de/audiotester/

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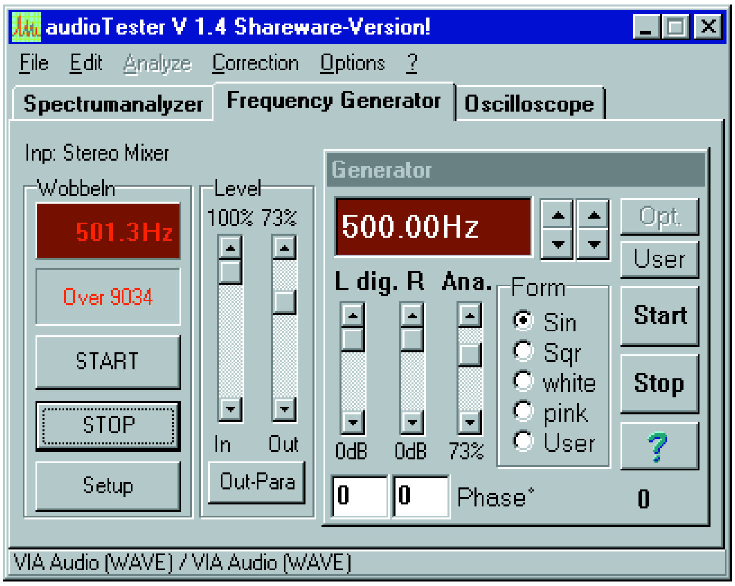

Inp: Stereo Mixer

Wobbeln: 501.3Hz

Over 9034

Level: 100% 73%

Generator: 500.00Hz

L dig. R Ana.: 0dB 0dB 73%

Form: ● Sin ○ Sqr ○ white ○ pink ○ User

0 0 Phase° 0

VIA Audio (WAVE) / VIA Audio (WAVE)